29, 44-46, 50 and 58-59 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ilardi et al. (U.S. Patent No. 5,466,389) in view of Kern (Hand Book of Semiconductor wafer cleaning technology) and Sehested et al. (J.Phys.Chem.) and further in view of Stanford et al. (U.S. Patent No. 5,244,000).

While the Office Action states that the Kern reference provides a general teaching that hydrogen peroxide is equivalent to ozone to remove organic contaminants, hydrogen peroxide is not equivalent to ozone in the current cleaning context as claimed. Applicants previously submitted a Declaration of Stefan DeGendt stating that hydrogen peroxide was not capable of removing organic photoresist contaminants from silicon substrates. As evidence, Applicants submitted with the Declaration of Stefan DeGendt an article by Werner Kern published in the Journal of the Electrochemical Society, Volume 137, 1990, p. 1888 in which Dr. Kern stated that hydrogen peroxide would not eliminate the organic photoresist contaminants. Thus, the same person which authored the reference upon which the Office Action relies as providing a teaching that hydrogen peroxide is equivalent to ozone states that, in fact, the two are not equivalent.

In a telephone conference with the Examiner, Applicants argued that hydrogen peroxide was not equivalent to ozone in the current cleaning context (*i.e.*, to remove "organic contaminants resulting from a previous lithographic step", as in claim 27, 51 and 60). In addition to the evidence previously provided in the Kern article, Applicants stated that they would submit a supplemental declaration providing experimental data. Applicants therefore submit the enclosed Supplemental Declaration of Stefan DeGendt pursuant to 37 C.F.R. §1.132. Dr. DeGendt states that "hydrogen peroxide and ozone are not functionally equivalent when

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removing organic contaminants resulting from a previous lithographic step." Supplemental Declaration of Stefan DeGendt, ¶6. As support, Dr. DeGendt provides experimental data in the form of a table, as shown in paragraph 8 of his supplemental declaration. In reviewing the data, Dr. DeGendt states:

> As shown in the enclosed graph, the amount of resist removed using ozone is orders of magnitude greater than the amount of resist removed using hydrogen peroxide. As merely one example, the amount of resist removed for ozone at 50 ppm and hydrogen peroxide at 50 ppm is 169.8 nm to .1 nm, respectively. This is a difference of over three orders of magnitude. Thus, it is my conclusion that in the context of removing organic contaminants resulting from a previous lithographic step, hydrogen peroxide is not functionally equivalent to ozone.

Supplemental Declaration of Stefan DeGendt, ¶10. Thus, based on the cleaning ability of ozone, being orders of magnitude greater than hydrogen peroxide at removing the resist, Dr. DeGendt concludes that hydrogen peroxide is not equivalent to ozone. Therefore, Applicants believe that the rejection based on the Ilardi and Kern references is improper and should be withdrawn.

CONCLUSION

If for any reason, the application is not considered to be in condition for allowance on the next Office Action and an interview would be helpful to resolve any remaining issues, the Examiner is requested to contact the undersigned attorney at (312) 913-0001.

Respectfully submitted,
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